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(54) PHOTOSTABILIZATION OF TITANIUM DIOXIDE SOL

(57)Abstract:

PURPOSE: To improve the photostability by producing a TiO₂ sol containing hydroxycarboxylic acid or its deriv. and metal ion, anion, complexing agent and/or oxidizing agent in a specified molar ratio.

CONSTITUTION: A TiO₂ sol obtd. by electrolysis is adjusted to have 10 to 15 wt.% concn, to which a soln. of a hydroxycarboxylic acid such as citric acid or its deriv. is added and stirred. The mixture is neutralized to pH 6 to 8 with an aq. NaOH soln. to prepare a TiO₂ sol having 5 to 200 nm particle size. Then the neutralized TiO₂ sol is added and mixed with an aq. soln. of metal salt such as ZnCl₂ which is stabilized by adding a hydroxycarboxylic acid or the like and is kept to pH 6 to 8 by adding an aq. NaOH soln. The produced transparent sol is spray dried or the like to obtain a neutral TiO₂ sol having photostability which contains 5 to 40 mol.% hydroxycarboxylic acid or its deriv., and one or more kinds of metal ions, anions such as F⁻, complexing agent such as EDTA and/or oxidizing agent such as perchlorate in total 0.1 to 20 mol.%.

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